

2024-2025 Wheat Update

ARKANSAS WHEAT PERFORMANCE TRIALS AND VARIETY SELECTION

Dr. Jason Kelley
Professor
Wheat and Feed Grains
Extension Agronomist

John Carlin
Director Arkansas Crop
Variety Improvement Program

Richard Bond
Program Associate
Variety Testing

Tyler Swanson
Program Associate
Variety Testing

Dr. Eshan Shakiba
Assistant Professor
Wheat Breeding and Genetics

Dr Terry Spurlock
Associate Professor
Extension Plant Pathologist

Wheat yield performance trials were conducted during the 2023-2024 growing season by the Arkansas Wheat Variety Testing Program under the direction of John Carlin to provide information about yield potential, agronomic characteristics, and disease reactions of commercially available and experimental lines/varieties of wheat. Variety selection is very important for successful and profitable wheat production. This publication is a summary of the Arkansas Wheat Variety Testing Program results from 2024 from commercially available varieties only, along with 2 and 3-year average yields from commercially available varieties only. It is designed to help producers select adapted, high-yielding, and disease-resistant varieties.

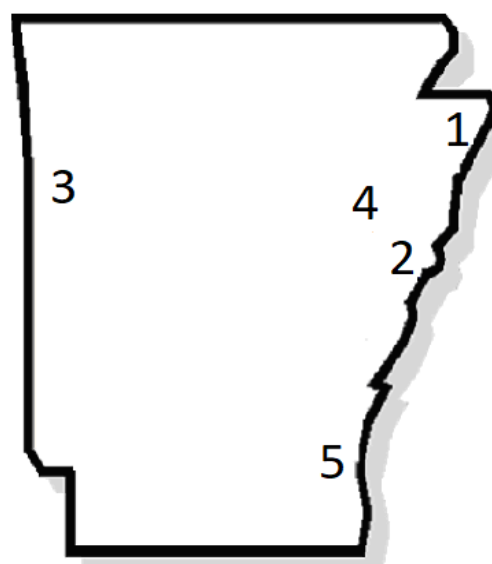


FIGURE 1. LOCATIONS OF ARKANSAS WHEAT PERFORMANCE TESTS

- 1 – Northeast Research and Extension Center, Keiser – Sharkey Silty Clay/Steele Complex
- 2 – Lon Mann Cotton Research Station, Marianna – Calloway Silt Loam
- 3 – Vegetable Substation, Kibler – Roxana Silt Loam
- 4 – Pine Tree Research Station, Colt – Calhoun Silt Loam
- 5 – Rohwer Research Station, Rohwer – Rilla/McGehee Silt Loam

Methods

Wheat varieties and experimental lines were entered by seed companies and public institutions and evaluated for an unbiased performance comparison. In general, recommended cultural practices for wheat production in Arkansas were used. All locations were planted between November 8-15 into conventionally tilled seedbeds using small plot planters.

Each trial consisted of 59 varieties and experimental lines replicated four times in a randomized complete block design. A seeding rate of 105 lb/A was used for all varieties at each location. Recommended production practices were followed, and pests were controlled as needed. No foliar fungicides were applied. Plots were harvested with a small plot combine to determine yields, which were adjusted to 13 percent moisture.

For further details concerning methods and detailed results from performance trials, consult the *Small-Grain Cultivar Performance Tests 2023-24*, Arkansas Agricultural Experiment Station, located at: <https://aaes.uada.edu/variety-testing/>

Table 1. Arkansas Wheat Performance Trials, Yield Summary of Commercially Available Varieties, 2024.

| Entry Name | -----2024 Yield (Bu./ac)----- | | | | |
|-----------------|-------------------------------|--------|----------|-----------|--------|
| | All Trial Avg.* | Keiser | Marianna | Pine Tree | Rohwer |
| Dyna-Gro 9593 | 80.1 | 65.5 | 80.1 | 114.1 | 60.5 |
| USG 3884 | 80.0 | 60.1 | 78.6 | 114.4 | 66.8 |
| USG 3352 | 77.1 | 65.2 | 72.4 | 100.4 | 70.3 |
| PROGENY #BUSTER | 77.0 | 66.4 | 64.6 | 98.8 | 78.2 |
| Dyna-Gro 9542 | 76.1 | 68.4 | 74.3 | 101.8 | 59.7 |
| KWS542 | 75.1 | 57.9 | 69.4 | 106.3 | 66.8 |
| Delta Grow 1200 | 75.0 | 64.1 | 66.5 | 100.7 | 68.5 |
| Dyna-Gro 9811 | 74.9 | 57.4 | 68.3 | 103.3 | 70.7 |
| AgriMAXX 525 | 74.5 | 59.2 | 67.1 | 105.4 | 66.4 |
| Dyna-Gro 9151 | 74.2 | 62.0 | 68.7 | 102.5 | 63.7 |
| USG 3363 | 74.0 | 61.5 | 68.4 | 100.3 | 65.8 |
| AgriMAXX 535 | 73.8 | 60.9 | 67.2 | 102.2 | 64.8 |
| Delta Grow 1000 | 73.5 | 55.8 | 64.8 | 103.1 | 70.4 |
| KWS500 | 73.4 | 56.6 | 70.1 | 102.9 | 63.9 |
| Dyna-Gro 9701 | 73.1 | 54.7 | 67.0 | 105.9 | 64.6 |
| GoWheat 6000 | 72.9 | 63.7 | 68.1 | 101.2 | 58.5 |
| P26R45 | 72.6 | 64.3 | 65.7 | 98.3 | 61.9 |
| P26R33 | 72.5 | 59.7 | 69.8 | 102.4 | 58.0 |
| Dyna-Gro 9120 | 71.6 | 62.6 | 62.0 | 100.3 | 61.6 |
| AgriMAXX 514 | 71.5 | 62.4 | 63.3 | 94.6 | 65.5 |
| P26R59 | 71.3 | 59.2 | 66.1 | 103.7 | 56.2 |
| PROGENY #BINGO | 71.0 | 65.2 | 64.2 | 95.8 | 58.8 |
| PROGENY #COLT | 70.9 | 50.7 | 68.2 | 97.5 | 67.3 |
| AGS 2055 | 70.9 | 60.8 | 64.1 | 97.4 | 61.1 |
| KWS490 | 70.8 | 63.1 | 69.8 | 88.6 | 61.6 |
| Delta Grow 1900 | 70.5 | 62.0 | 61.9 | 92.7 | 65.3 |
| KWS397 | 69.4 | 57.4 | 67.7 | 94.1 | 58.5 |
| GoWheat 6056 | 68.7 | 60.8 | 60.9 | 90.7 | 62.2 |
| PROGENY #CHAD | 68.2 | 64.9 | 67.0 | 90.4 | 50.4 |
| KWS543 | 68.1 | 56.1 | 68.0 | 90.3 | 57.8 |
| KWS501 | 67.7 | 50.1 | 68.4 | 93.7 | 58.4 |
| Revere 2169 | 67.6 | 60.2 | 57.6 | 89.8 | 62.8 |
| Delta Grow 3500 | 67.6 | 53.5 | 61.9 | 98.4 | 56.5 |
| PROGENY #TURBO | 67.2 | 56.0 | 61.6 | 93.0 | 58.2 |
| Dyna-Gro 9172 | 67.0 | 56.1 | 55.0 | 92.5 | 64.5 |
| Dyna-Gro 9290 | 66.7 | 59.7 | 60.6 | 91.0 | 55.5 |
| Dyna-Gro 9393 | 66.2 | 60.2 | 60.9 | 88.8 | 54.9 |
| KWS529 | 65.8 | 56.3 | 67.7 | 94.6 | 44.4 |
| Delta Grow 1800 | 65.3 | 51.7 | 52.2 | 92.6 | 64.8 |
| KWS525 | 64.7 | 53.0 | 61.2 | 94.3 | 50.2 |
| GoWheat 4059S | 64.0 | 56.7 | 58.3 | 82.2 | 58.8 |
| AgriMAXX 544 | 63.0 | 48.3 | 61.5 | 87.0 | 55.0 |
| USG 3574 | 60.2 | 48.8 | 70.2 | 75.3 | 46.5 |
| VT Pitman | 58.4 | 39.0 | 52.5 | 87.4 | 54.8 |
| Dyna-Gro 9533 | 57.6 | 51.1 | 67.5 | 68.8 | 43.0 |

Table 1. Continued. Arkansas Wheat Performance Trials, Yield Summary of Commercially Available Varieties, 2024.

| | -----2024 Yield (Bu./ac)----- | | | | |
|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| <u>Entry Name</u> | All Trial Avg.* | Keiser | Marianna | Pine Tree | Rohwer |
| Mean | 70.2 | 58.4 | 65.6 | 96.2 | 60.8 |

*All Trial Average is the average yield of Keiser, Marianna, Pine Tree, and Rohwer trials during 2024.

Table 2. Arkansas Wheat Performance Trials, Yield Summary of Commercially Available Varieties, 2023-2024.

| | -----2-year Average Yield (Bu./ac)----- | | | | | |
|-------------------|---|-------------|-------------|-------------|-------------|-------------|
| <u>Entry Name</u> | All Trial Avg.* | Keiser | Kibler** | Marianna | Pine Tree | Rohwer |
| Delta Grow 1200 | 83.9 | 77.8 | 82.2 | 75.9 | 97.6 | 84.4 |
| USG 3352 | 82.6 | 78.2 | 79.9 | 77.8 | 98.9 | 75.3 |
| USG 3363 | 82.2 | 76.7 | --- | 76.6 | 100.9 | 74.4 |
| PROGENY #BUSTER | 81.7 | 81.2 | 79.0 | 69.2 | 98.1 | 78.4 |
| PROGENY #BINGO | 80.7 | 82.1 | --- | 71.3 | 96.9 | 72.4 |
| P26R33 | 80.0 | 72.7 | --- | 73.9 | 99.5 | 73.7 |
| Delta Grow 1000 | 79.9 | 66.6 | --- | 73.4 | 102.9 | 76.7 |
| AgriMAXX 514 | 79.5 | 77.9 | 76.9 | 70.7 | 95.6 | 73.6 |
| KWS490 | 79.5 | 76.4 | --- | 75.0 | 89.1 | 77.5 |
| Dyna-Gro 9701 | 79.3 | 71.7 | 74.7 | 71.1 | 100.9 | 73.4 |
| Dyna-Gro 9151 | 79.0 | 72.1 | 80.7 | 71.7 | 101.0 | 71.3 |
| P26R45 | 78.6 | 75.9 | 79.2 | 70.0 | 102.9 | 65.5 |
| AgriMAXX 535 | 78.2 | 72.3 | --- | 71.8 | 95.8 | 73.0 |
| P26R59 | 77.4 | 70.6 | 80.4 | 72.3 | 100.1 | 66.7 |
| Dyna-Gro 9811 | 77.2 | 69.1 | 81.0 | 69.7 | 96.4 | 73.7 |
| AGS 2055 | 76.7 | 68.6 | 64.3 | 70.8 | 97.0 | 70.5 |
| Delta Grow 1900 | 76.0 | 71.7 | --- | 70.5 | 88.5 | 73.1 |
| KWS397 | 75.8 | 69.8 | --- | 74.7 | 94.3 | 64.5 |
| USG 3574 | 75.8 | 67.5 | --- | 77.1 | 91.6 | 66.8 |
| PROGENY #TURBO | 75.6 | 66.3 | 75.4 | 69.4 | 94.4 | 72.4 |
| Dyna-Gro 9120 | 75.3 | 71.5 | 85.8 | 63.9 | 95.8 | 69.9 |
| Revere 2169 | 75.1 | 70.5 | 75.2 | 68.8 | 89.9 | 71.1 |
| GoWheat 6000 | 74.6 | 70.5 | 60.1 | 68.4 | 94.6 | 65.0 |
| Dyna-Gro 9393 | 74.1 | 73.1 | --- | 67.1 | 89.6 | 66.4 |
| GoWheat 6056 | 73.9 | 72.9 | --- | 66.8 | 89.1 | 66.6 |
| Dyna-Gro 9172 | 73.7 | 70.9 | 76.7 | 63.7 | 89.0 | 71.0 |
| GoWheat 4059S | 73.3 | 71.1 | --- | 65.5 | 86.8 | 69.6 |
| PROGENY #CHAD | 72.2 | 69.7 | 66.2 | 70.4 | 88.2 | 60.4 |
| Delta Grow 1800 | 71.3 | 66.5 | 67.2 | 62.6 | 90.9 | 65.2 |
| Dyna-Gro 9290 | 70.8 | 70.3 | --- | 63.2 | 86.6 | 63.1 |
| Delta Grow 3500 | 66.8 | 60.2 | 41.4 | 58.8 | 87.8 | 60.4 |
| Mean | 76.8 | 72.0 | 73.7 | 70.1 | 94.5 | 70.5 |

*Trials with yield data from 2023 and 2024 only. Includes Keiser, Marianna, Pine Tree, and Rohwer

**Kibler 2-year calculated from 2021 and 2022 data (no data in 2023 or 2024) and is not included in All Trials avg.

| Table 3. Arkansas Wheat Performance Trials, Yield Summary of Commercially Available Varieties, 2022-2024. | | | | | |
|--|---|---------------|-----------------|------------------|---------------|
| | -----3-Year Average Yield (Bu./ac)----- | | | | |
| Entry Name | All Trials Avg.* | Keiser | Marianna | Pine Tree | Rohwer |
| Delta Grow 1200 | 85.3 | 77.1 | 82.6 | 91.1 | 90.2 |
| PROGENY #BUSTER | 82.7 | 79.5 | 75.5 | 94.8 | 81.0 |
| AgriMAXX 514 | 81.9 | 73.4 | 77.4 | 94.7 | 82.1 |
| PROGENY #BINGO | 81.8 | 75.2 | 77.6 | 95.9 | 78.4 |
| USG 3352 | 81.7 | 74.1 | 81.6 | 89.9 | 81.3 |
| Delta Grow 1000 | 79.9 | 63.7 | 78.7 | 97.1 | 80.2 |
| Dyna-Gro 9701 | 79.7 | 69.3 | 75.8 | 94.0 | 79.5 |
| Dyna-Gro 9151 | 79.5 | 70.2 | 78.9 | 91.5 | 77.4 |
| P26R45 | 78.9 | 73.4 | 75.5 | 94.1 | 72.7 |
| Dyna-Gro 9120 | 78.6 | 69.8 | 72.9 | 93.1 | 78.5 |
| PROGENY #TURBO | 78.2 | 65.3 | 78.9 | 89.2 | 79.4 |
| P26R59 | 77.3 | 67.6 | 75.6 | 89.9 | 75.9 |
| AGS 2055 | 76.9 | 65.8 | 73.2 | 91.8 | 76.6 |
| Dyna-Gro 9811 | 76.8 | 67.2 | 73.4 | 88.0 | 78.6 |
| Dyna-Gro 9393 | 75.9 | 69.0 | 72.0 | 86.8 | 75.6 |
| PROGENY #CHAD | 74.9 | 68.5 | 75.3 | 86.9 | 68.8 |
| Dyna-Gro 9172 | 74.7 | 67.3 | 70.3 | 85.5 | 75.5 |
| Revere 2169 | 74.0 | 65.3 | 73.7 | 81.4 | 75.5 |
| Delta Grow 1800 | 73.9 | 67.3 | 68.0 | 86.5 | 73.9 |
| GoWheat 6000 | 73.7 | 69.0 | 65.7 | 88.5 | 71.4 |
| GoWheat 6056 | 72.9 | 65.6 | 70.7 | 84.1 | 71.3 |
| Delta Grow 3500 | 68.0 | 62.5 | 59.5 | 84.8 | 65.0 |
| Mean | 77.6 | 69.4 | 74.2 | 90.0 | 76.8 |

*Trials with yield data from 2022, 2023, and 2024 include Keiser, Marianna, Pine Tree, and Rohwer.

Table 4. Agronomic Characteristics of Commercially Available Varieties in Arkansas Performance Trials, 2024.*

| Entry Name | Test Weight Lb/bu | Plant Height Inches | Heading Date | Head Type |
|-------------------|------------------------------|--------------------------------|-------------------------|----------------------|
| AgriMAXX 514 | 54.2 | 33 | 4/13/24 | Awned |
| AgriMAXX 525 | 56.5 | 32 | 4/14/24 | Awned |
| AgriMAXX 535 | 56.8 | 34 | 4/13/24 | Awned |
| AgriMAXX 544 | 55.9 | 33 | 4/11/24 | --- |
| AGS 2055 | 55.4 | 35 | 4/12/24 | Awned |
| Delta Grow 1000 | 55.7 | 35 | 4/13/24 | Awned |
| Delta Grow 1200 | 55.1 | 34 | 4/13/24 | Awned |
| Delta Grow 1800 | 56.8 | 34 | 4/9/24 | Awned |
| Delta Grow 1900 | 55.4 | 32 | 4/11/24 | Awned |
| Delta Grow 3500 | 56.3 | 34 | 4/8/24 | Awned |
| Dyna-Gro 9120 | 57.6 | 32 | 4/12/24 | Awned |
| Dyna-Gro 9151 | 57.6 | 34 | 4/12/24 | Awned |
| Dyna-Gro 9172 | 53.4 | 32 | 4/13/24 | Awned |
| Dyna-Gro 9290 | 54.9 | 33 | 4/10/24 | Awned |
| Dyna-Gro 9393 | 55.2 | 32 | 4/14/24 | Awned |
| Dyna-Gro 9533 | 54.2 | 31 | 4/14/24 | Smooth |
| Dyna-Gro 9542 | 55.2 | 33 | 4/14/24 | Awned |
| Dyna-Gro 9593 | 55.5 | 34 | 4/12/24 | Awned |
| Dyna-Gro 9701 | 55.5 | 36 | 4/14/24 | Awned |
| Dyna-Gro 9811 | 55.8 | 35 | 4/10/24 | Awned |
| GoWheat 4059S | 55.8 | 33 | 4/15/24 | Smooth |
| GoWheat 6000 | 56.8 | 33 | 4/11/24 | Awned |
| GoWheat 6056 | 54.6 | 34 | 4/13/24 | Awned |
| KWS397 | 54.6 | 33 | 4/11/24 | Smooth |
| KWS490 | 56.8 | 33 | 4/14/24 | Awned |
| KWS500 | 55.7 | 32 | 4/13/24 | Awned |
| KWS501 | 55.9 | 32 | 4/13/24 | Awned |
| KWS525 | 54.5 | 33 | 4/14/24 | Awned |
| KWS529 | 53.0 | 33 | 4/12/24 | Smooth |
| KWS542 | 56.8 | 34 | 4/13/24 | Awned |
| KWS543 | 56.6 | 33 | 4/14/24 | Awned |
| P26R33 | 56.5 | 34 | 4/12/24 | Awned |
| P26R45 | 52.6 | 35 | 4/13/24 | Smooth |
| P26R59 | 54.5 | 30 | 4/12/24 | Smooth |
| PROGENY #BINGO | 54.6 | 34 | 4/13/24 | Awned |
| PROGENY #BUSTER | 56.8 | 34 | 4/13/24 | Awned |
| PROGENY #CHAD | 55.1 | 31 | 4/10/24 | Smooth |
| PROGENY #TURBO | 56.0 | 31 | 4/10/24 | Smooth |
| PROGENY #COLT | 56.8 | 31 | 4/15/24 | Smooth |
| Revere 2169 | 54.2 | 33 | 4/13/24 | Awned |
| USG 3352 | 56.4 | 35 | 4/14/24 | Awned |
| USG 3363 | 55.4 | 34 | 4/13/24 | Awned |
| USG 3574 | 54.6 | 31 | 4/14/24 | Smooth |
| USG 3884 | 55.8 | 33 | 4/12/24 | Awned |
| VT Pitman | 55.4 | 32 | 4/10/24 | Awned |

Table 4 Continued. Agronomic Characteristics of Commercially Available Varieties in Arkansas Performance Trials, 2024.*

| <u>Entry Name</u> | Test Weight Lb/bu | Plant Height Inches | Heading Date | Head Type |
|--------------------------|------------------------------|--------------------------------|-------------------------|----------------------|
| Mean | 55.5 | 33 | 4/12/24 | --- |

*Summary of data on commercially available entries in 2024 trials.

Table 5. Disease Reactions of Commercially Available Varieties in Arkansas Wheat Performance Trials, 2024*.

| Entry Name | Septoria Tritici Blotch Severity 0-9 | Stripe Rust Severity 0-9 | Leaf Rust Severity 0-9 | Fusarium Head Blight Severity 0-9 | Bacterial Leaf Streak Severity 0-9 |
|-------------------|---|---|---------------------------------------|--|---|
| AgriMAXX 514 | 3.0 | 1.4 | 3.0 | 1.4 | 4.0 |
| AgriMAXX 525 | 3.3 | 2.1 | 4.0 | 2.5 | 3.0 |
| AgriMAXX 535 | 3.2 | 1.8 | 1.3 | 1.9 | 3.1 |
| AgriMAXX 544 | 1.5 | 6.3 | 0.7 | 1.6 | 4.0 |
| AGS 2055 | 4.4 | 2.9 | 0.7 | 2.2 | 3.6 |
| Delta Grow 1000 | 2.0 | 1.1 | 1.7 | 3.3 | 3.5 |
| Delta Grow 1200 | 3.6 | 2.1 | 2.3 | 2.1 | 3.4 |
| Delta Grow 1800 | 2.2 | 2.6 | 1.7 | 1.5 | 3.3 |
| Delta Grow 1900 | 3.3 | 1.4 | 2.3 | 1.9 | 5.5 |
| Delta Grow 3500 | 2.3 | 5.5 | 1.0 | 3.8 | 4.3 |
| Dyna-Gro 9120 | 3.7 | 2.1 | 3.3 | 1.8 | 4.1 |
| Dyna-Gro 9151 | 2.9 | 2.6 | 3.3 | 2.1 | 3.6 |
| Dyna-Gro 9172 | 3.3 | 1.7 | 7.0 | 1.3 | 3.4 |
| Dyna-Gro 9290 | 3.3 | 1.8 | 1.7 | 4.1 | 4.0 |
| Dyna-Gro 9393 | 3.2 | 1.5 | 3.0 | 2.2 | 3.0 |
| Dyna-Gro 9533 | 2.1 | 4.4 | 3.7 | 1.8 | 4.1 |
| Dyna-Gro 9542 | 2.0 | 1.3 | 2.3 | 2.6 | 3.4 |
| Dyna-Gro 9593 | 2.0 | 0.8 | 3.0 | 2.7 | 3.6 |
| Dyna-Gro 9701 | 2.5 | 2.9 | 2.7 | 2.4 | 3.1 |
| Dyna-Gro 9811 | 2.2 | 1.4 | 1.3 | 2.0 | 4.2 |
| GoWheat 4059S | 2.4 | 1.6 | 1.3 | 3.8 | 2.9 |
| GoWheat 6000 | 2.9 | 1.9 | 0.7 | 3.4 | 3.5 |
| GoWheat 6056 | 3.6 | 1.6 | 4.3 | 1.5 | 4.0 |
| KWS397 | 2.6 | 3.7 | 2.3 | 1.2 | 4.4 |
| KWS490 | 2.7 | 3.6 | 0.3 | 4.2 | 4.3 |
| KWS500 | 2.5 | 4.1 | 2.7 | 2.3 | 4.4 |
| KWS501 | 3.0 | 4.8 | 2.3 | 2.4 | 4.3 |
| KWS525 | 3.3 | 1.6 | 5.7 | 1.8 | 3.4 |
| KWS529 | 2.8 | 3.2 | 1.7 | 2.6 | 5.7 |
| KWS542 | 2.3 | 3.8 | 1.3 | 2.6 | 2.8 |
| KWS543 | 2.5 | 2.6 | 2.0 | 2.4 | 3.1 |
| P26R33 | 2.5 | 3.5 | 1.7 | 1.3 | 4.1 |
| P26R45 | 2.6 | 1.6 | 3.3 | 1.8 | 2.7 |
| P26R59 | 3.3 | 2.2 | 2.7 | 3.1 | 3.1 |
| PROGENY #BINGO | 2.9 | 1.3 | 2.7 | 1.8 | 4.0 |
| PROGENY #BUSTER | 3.1 | 2.2 | 3.7 | 2.5 | 2.5 |
| PROGENY #CHAD | 2.7 | 2.5 | 1.3 | 4.5 | 3.7 |
| PROGENY #TURBO | 2.7 | 2.4 | 1.3 | 2.4 | 3.5 |
| PROGENY #COLT | 3.6 | 1.6 | 2.7 | 2.0 | 2.5 |
| Revere 2169 | 3.5 | 1.6 | 3.3 | 1.6 | 3.9 |
| USG 3352 | 2.0 | 2.2 | 1.0 | 4.0 | 2.9 |
| USG 3363 | 2.3 | 1.6 | 2.7 | 1.9 | 2.9 |
| USG 3574 | 1.8 | 4.1 | 5.0 | 1.8 | 3.6 |
| USG 3884 | 2.3 | 1.5 | 2.3 | 2.4 | 2.6 |

Table 5. Continued. Disease Reactions of Commercially Available Varieties in Arkansas Wheat Performance Trials, 2024*.

| <u>Entry Name</u> | Septoria Tritici Blotch Severity 0-9 | Stripe Rust Severity 0-9 | Leaf Rust Severity 0-9 | Fusarium Head Blight Severity 0-9 | Bacterial Leaf Streak Severity 0-9 |
|--------------------------|---|---|---------------------------------------|--|---|
| VT Pitman | 3.2 | 5.4 | 0.3 | 3.1 | 4.1 |
| Mean | 2.8 | 2.5 | 2.4 | 2.4 | 3.6 |

*Disease ratings were visually rated based on a 0-9 scale where the higher number represents higher disease levels.